



and mental well-being (Bhimani, 2014; Cleveland Clinic, 2019). For most individuals diagnosed with PD, medical interventions are typically only effective for roughly 10 years; after that, the symptoms will continue to progress for the rest of that person's life (Goldsworthy & Knowles, 2008). As the disease becomes more advanced, patients may find themselves unable to move or feed on their own. Combined with the decreased clarity of speech due to reduced prosody, increased rate, decreased volume and potential dysarthria (Tjaden, 2008), caring for someone with advanced Parkinson's Disease requires a high level of attention and care on behalf of the primary caregiver.

With the potential for caregiver burnout, care should be taken to mitigate the effects of CB however possible. Increasing support will translate to increased quality of life for the patient. Ensuring that caregivers are able to manage their own day-to-day functions before caring for their loved ones is crucial to providing the best care possible. Thus, the purpose of this review is to identify key characteristics that contribute to increased levels of CB in the hopes of mor

Researchers used ANOVA testing to make comparisons of characteristics of patient characteristics between these 3 subgroups. Overall, this study found that longer duration of disease, higher daily dosages of levodopa medication and increased complications as a result of the levodopa medication were more likely to result in increased levels of CB. With regard to patient QoL, they found that decreased levels among activities of daily living (ADL), stigma of PD, and decreased cognition were likely to result in increased levels of CB. However, this study excluded all patients whose cognitive abilities were not sufficient enough to provide consent; in this way, a population who requires a much higher level of care and may, perhaps, result in the highest levels of CB were not investigated. Based on the various statistical analyses and use of standardized testing and questionnaires, the data from this study was found to be highly suggestive.

**Macchi et al. (2020)** investigated 175 patients of PD and their caregivers, with regard to specific characteristics and how they relate to increased levels of CB across three medical centers in the US. Data was collected electronically and involved the use of various standardized tests and questionnaires that focused on patient characteristics including motor symptoms, cognition, mood disturbances, functional impairments, QoL, use of services, and palliative performance. Caregiver data was also collected and focused on various characteristics of daily life, in addition to length of caregiving, mood, and use of services related to hospitalizations or other counseling. Researchers of this study used a multivariate linear regression model to identify associations between patient and caregiver characteristics and level of CB; ANOVA models were used to compare categorical data with that of the level

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Theoretically, as the disease evolves, symptoms would increase, and cognition would decrease; all of these changes would likely impact the level of caregiving to a great degree. Further research should be completed to look at these effects and how the patient and caregiver characteristics may contribute over time. As well, for the majority of the studies, the patients whose level of cognition was deemed as being not sufficient enough to complete questionnaires or give consent were excluded from participating. Thus, the data may not represent the full picture on what caregiving burden looks like with reduced patient cognition. Those who are caring for patients in late stages of the disease are most likely the ones who are most in need of additional support.

Furthermore, none of these studies investigated the impact of potential caregiver burnout. As caregiving needs increase, the physical, financial and mental exhaustion that comes along with caregiver burden may manifest itself into complete burnout. In such cases, burnout may manifest itself into negative impacts on the life and health of the caregiver with regard to diet, stress, depression, weight loss, or insomnia (Katsuya et al., 2000). What is left to identify is how much caregiver burden is too much? When is it necessary to provide additional help in the home/medical institution? And how do we prevent caregivers from reaching that point at all by providing support, counselling and resources?

### ***Clinical Implications***

With such a large range of symptoms, PD may present itself differently to each individual. Thus, the tasks for caregiving may look different for each pair and may evolve over time. As presented by Lee et al. (2019), the importance of understanding what PD is and how it affects the patient may be a large contributor to increased levels of CB. Furthermore, Genç et al. (2019) demonstrated how patient QoL may diminish as symptoms of depression increase in later stages of the disease, both contributing to increased level of CB. What these two studies demonstrate is the importance of providing patients and caregivers with the necessary resources to better

understand PD and its effects on the patients lives; as such, a mutual connection may be forged and may, in turn, assist in mitigating the effects of CB.

In clinical practice, care should be taken to address these concerns and guide patients and their caregivers through an educational process to learn how their specific and individualized needs can and should be addressed. As well, as the disease progresses and the effects of depression, reduced cognition and increased dependence on the caregiver emerge, additional supports should be introduced to mitigate the effects of that additional burden on the caregiver. Regular check-ins and questionnaires should be provided to the caregiver in order to address these issues and prevent the potential of caregiver burnout.

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